**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| Application No.: 10/565,585 | Examiner: Enda Wong |
| Applicant(s): Emmanuel U. Okoroafor | Art Unit: 1795 |
| Title: COATING | Confirmation No.: 2673 |
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Dear Sir/Madam:

Applicant appeals the final office action of April 14, 2010, which rejects claims 1-4, 6-8, 10-14, 24, and 26. Specifically, claims 1-3, 6, 8, and 12-14 are rejected under 35 USC 103(a) as being unpatentable over Chan (US 2004/0247904) in view of Kurze (US 5,811,194). Claims 4, 7, 10, 11, 24, and 26 are rejected as being unpatentable under 35 USC 103(a) over Chan and Kurze in view of other prior art references, which are not specifically discussed in this pre-appeal brief.

**BACKGROUND**

The invention as described by independent claim 1 is directed to a method of forming a coating on a plastics substrate comprising the steps of: applying a metallic layer to the plastic substrate wherein the metallic layer is selected from the group of metals including at least magnesium, titanium, tantalum, zirconium, niobium, hafnium,

tin, tungsten, molybdenum, vanadium, antimony, bismuth, and alloys of the aforementioned metals; and subjecting the metallic layer to electrolytic plasma oxidation, wherein the metallic layer is anodically charged and immersed in an aqueous electrolytic solution for forming at least a sintered ceramic oxide layer on the metallic layer.

The electrolytic plasma oxidation is performed by applying a relatively high voltage to the metallic layer on the plastic substrate. "The coating is suitably formed by immersing an anodically charged metal coated part in an alkaline electrolyte… using a stainless steel bath acting as the counter electrode and applying an AC voltage in excess of 250V to the part." *See, the specification, page 6, lines 18-22.* As a result, a sintered ceramic oxide layer can be formed on the metallic layer, thereby providing the underlying plastic substrate with much desired structural strength. As disclosed by the specification, "[d]uring this technique, a partial oxygen plasma forms at the metal/gas/electrolyte phase boundary and results in the creation of a ceramic oxide layer." *See, the specification, page 6, lines 22-24.*

The Examiner acknowledges that Chan does not teach the claimed electrolytic plasma oxidation step, but asserts that it would have been obvious for a person skilled in the art at the time when the invention was made to replace the electrolytic oxidation step of Chan with the electrolytic plasma oxidation technique taught by Kurze.

**ISSUES**

The issue is whether it would have been obvious for a person skilled in the art at the time when the invention was made to replace the electrolytic oxidation step of Chan with the electrolytic plasma oxidation technique taught by Kurze.

**DISCUSSION**

***I. Chan requires the voltage applied to the Al/Ti alloy during the electrolytic oxidation process to be less than 110 volts.***

Chan is about varying the voltage applied to an Al/Ti alloy during an electrolytic oxidation process in order to obtain different colors from the alloy oxide. *See, paragraph [0021].* The voltage applied is adjusted between 0 and 110 volts, and varying the voltage within the range would render the alloy oxide in various colors. *See, paragraph [0032].* For example, a voltage of 25 volts would produce the alloy oxide in dark blue, and a voltage of 100 volts would produce the alloy oxide in blue purple. *See, table 1.*

***II. It is understood by those skilled in the art that the voltage required in an electrolytic plasma oxidation process is much higher than the range prescribed by Chan.***

A relatively high voltage is required in an electrolytic plasma oxidation process to create a partial oxygen plasma presence at the metal/gas/electrolyte phase boundary. For example, in the claimed invention, the voltage required is in excess of 250 volts. *See, the specification, page 6, lines 18-22.* Also as described by Kurze, "[f]or producing particularly wear-resistant oxide ceramic layers on aluminium or its alloys by plasma-chemical anodic oxidation…, it is possible to utilize even very significantly diluted electrolytic baths…" *See, col. 3, lines 1-7.* "Because of the low conductivity of this electrolytic bath, the voltage end value may reach up to 2000V." *See, col. 3, lines 9-11.* As disclosed by both the present application and Kurze, the voltage required in an electrolytic plasma oxidation process is much higher than the range prescribed by Chan.

***III. Electrolytic plasma oxidation would defeat Chan's intended purpose, and therefore it would not have been obvious for a person skilled in the art to replace Chan's electrolytic oxidation process with the claimed electrolytic plasma oxidation.***

As discussed above, Chan's intended purpose is to create various colors by performing electrolytic oxidation of Al/Ti alloys at a relatively low voltage range, i.e., from 0 to 110 volts. An electrolytic plasma oxidation would require a voltage outside the range prescribed by Chan. If the electrolytic plasma oxidation were used in Chan's process, none of the colors listed in Chan's table 1 would have been produced, because of the high voltages required by the electrolytic plasma oxidation process. Using the electrolytic plasma oxidation in Chan's process would defeat its intended purpose. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or modification to make the proposed modification. *In re Gordon, 733 F.2d 900 (Fed. Cir. 1984).* Thus, it would not have been obvious to replace Chan's electrolytic oxidation step with an electrolytic plasma oxidation step.

**CONCLUSION**

As discussed above, independent claim 1 is patentable over Chan in view of Kurze under 35 USC 103(a). Accordingly, claims 2-4, 6-8, 10-14, 24, and 26 that depend from claim 1 and include all limitations recited therein are also patentable over Chan, Kurze, and various other prior art references under 35 USC 103(a). Applicant notes that claims 1 and 13 are also rejected under 35 USC 112, and will address those rejections in a separate response upon the outcome of a review of the obviousness issue.

Respectfully submitted,

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